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Awards and Recognition, Iowa Academy of Science, 1997

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AWARDS AND RECOGNITION IOWA ACADEMY OF SCIENCE 1997

DISTINGUISHED FELLOW

Peter A. Peterson

Dr. Peter Peterson has been on the faculty of Iowa State University since 1956. His career, spanning over forty years, reflects his research interests in the study of the genetics and cytogenetics of corn. After graduation (B.S., Tufts Univ.—1947; Ph.D., Univ. of Illinois, Urbana—1953), Dr. Peterson held positions with the University of California-Riverside and the Carnegie Institution of Washington. He has also presented lectures and seminars all over the world and done research in West Germany, England, Austria, and Sweden. Author of numerous publications, Dr. Peterson is nationally and internationally recognized as an authority on the subject of molecular genetics. The information and genetic materials derived from his research have become an integral part of other research laboratories throughout the United States and the world. He has been honored As the Distinguished Iowa Scientist (IAS, 1988); received the Burlington Northern Award for Career Achievement in Research (Iowa State Univ., 1992); National Council of Commercial Plant Breeders Award for Genetics & Plant Breeding (1994); and an Iowa State Alumni Association Faculty Citation (1994). In addition, the commemorative issue of *Maydica* (a journal devoted to maize and allied species) was dedicated to him (Bergamo, Italy, 1991). Dr. Peterson maintains a current research program, and is an active member of many professional organizations within his field of specialization.

DISTINGUISHED FELLOW

M. A. Tabatabai

Considered the foremost soil enzymologist in the United States, Dr. M. Ali Tabatabai is also recognized internationally as an outstanding soil scientist and an exceptionally productive and versatile researcher. The research programs he has developed at Iowa State University have made many important contributions to soil science and have resulted in improved methods now widely used for analysis of soils, plant materials, and water. In addition, his research has provided information concerning pollutants; he has been a frequent speaker on issues related to sulfur cycling in soils, soil enzymes, and atmospheric deposition. He has also authored, co-authored, or contributed to more than one hundred seventy scientific publications. As a teacher, Dr. Tabatabai has gained a strong reputation for his mentoring abilities with graduate students and post-doctorate visitors from both the United States and countries as diverse as Costa Rica, Iran, China, Scotland, and Germany. In addition to membership in many professional organizations, Dr. Tabatabai has received recognition from his peers in the form of numerous formal awards, including: Distinguished Iowa Scientist Award (IAS, 1994); Alumni Award of Merit (Iowa Beta Chapter, Gamma Sigma Delta, 1993); Soil Science Research Award (Soil Science Society of America, 1992); Fellow, American Association for the Advancement of Science (1987); The American Institute of Chemists (1986). He is listed in the *Who's Who in Science*, and *Who's Who of American Men and Women in Science*.

DISTINGUISHED SERVICE

The Aldo Leopold Center for Sustainable Agriculture, ISU

The Leopold Center was established in 1987 for the protection of water from possible contaminants originating in agricultural production. Since its creation, the Leopold Center has made outstanding contributions to the application of science to public service, as well as to its support of research and technology transfer related to sustainable agriculture in Iowa. It has been instrumental in supporting new kinds of research, significantly diversifying it to include long crop rotations, transition to organic production, effects of inter-cropping on production and wildlife use, and reduction of tillage and use of nitrogen fertilizer, herbicides and pesticides. The Leopold Center has worked hand-in-hand with the Practical Farmers of Iowa to initiate on-farm research in sustainable agriculture, thereby empowering farmers to pursue their own research questions in cooperation with university researchers. This cooperation means that the experiments are statistically valid and that the relevant data are collected to measure the results of the experiments. It has also allowed both researchers and farmers to increase their knowledge about production systems, decision-making processes, and the complexities of increasing native biodiversity without severely impacting the farmer's pocketbook. Through its grants program, interdisciplinary research teams, and education and outreach programs, the Leopold Center has taken a major role in the effort to champion sustainable agriculture within the state of Iowa.

DISTINGUISHED IOWA SCIENTIST

Charles E. Glatz

With service to Iowa technology and bio-processing recognized world-wide, Dr. Charles Glatz is an excellent representative of the scientific community. Although his research has focused on food and biochemical engineering, he has made his mark on the area of protein recovery. Of particular value have been his studies of polyelectrolyte-induced precipitations. The innovative combination of molecular biology and separation science is what sets Dr. Glatz' work apart and has opened the door to a broad range of applications in the food and pharmaceutical industries. A leading figure in his field, he is regularly invited to speak at national meetings and conferences on separation processes and biotechnology. In addition, he has authored chapters in several books, done research and outreach consultation for major corporations such as the Iowa Corn Production Board, the Iowa Department of Transportation, the Consortium for Plant Biotechnology, and Pioneer Hi-Bred, and pioneered the teaching of a course in biological separations by videotape to a sizable number of students mainly from Cargill and Heartland Lysine—opening the door for the teaching of other video-taped/closed circuit television bio-chemical engineering courses to be taught to engineers, food scientists, and others. Dr. Glatz has received the Outstanding Teacher Award, College of Engineering (Iowa State University, 1990); the Webber Award for Outstanding Teacher in Chemical Engineering (1982); and was a Graduate Fellow, National Science Foundation (1971-1974). However, it is the manner in which he represents his profession that brings the highest praise. As one colleague wrote,

"...few (if any) [accomplish so much] with more grace and generosity than Dr. Glatz. He is open with his science and genuinely supportive of the work of others—a true mentor for his students and a true friend to his colleagues. I know of no finer representative of our profession."

DISTINGUISHED IOWA SCIENTIST

James J. Dinsmore

Dr. James J. Dinsmore has distinguished himself as a leading ornithologist and wetlands expert for not only Iowa, but also the U.S. Since coming to Iowa State University in 1975, he has directed numerous studies that examined bird usage of wetlands, application of ecological and evolutionary principles as related to wetland birds, and, most recently, pioneering studies of restored wetlands. Most of these studies have been in Iowa, but other locations include North Dakota and Manitoba. The results of his investigations have been published in over forty major papers and about the same number of briefer notes, which include publications of the *Proceedings of the Iowa Academy of Science* and *The Journal of the Iowa Academy of Science*. Throughout these studies, he has served as a mentor for twenty graduate theses or dissertations, and his students speak highly of his guidance and insights. Dr. Dinsmore is an Elective member of the American Ornithologists' Union, a participant in Partners in Flight, and has received the Award of Merit and been selected for the Iowa Conservation Hall of Fame by the Iowa Chapter of the Wildlife Society. He has also unselfishly devoted himself to Iowa ornithology. Not only has he served four years as president of the Iowa Ornithologists' Union and editor of *Iowa Bird Life* for eight years, but in the last thirteen years he has co-authored three books on Iowa's birds (*Iowa Birds*, *Birds in Iowa*, and *The Iowa Breeding Bird Atlas*), authored a book on the human impact on Iowa's game species (*A Country So Full of Game*), and contributed to a book on Iowa wildlife, *Iowa Wildlife Viewing Guide*. Despite his heavy work schedule, Dr. Dinsmore always makes time for questions, public presentations, and helping students, scientists, and the public, and he is a valued friend and colleague to many.

DISTINGUISHED IOWA SCIENCE TEACHER

Edwin T. Cawley

After thirty-three years of teaching at Loras College, Professor Edward Cawley still exhibits the same enthusiasm and eagerness to share his talents that marked his entrance into the academic world. An active faculty member, Dr. Cawley has served on nearly every major committee and continues to teach part-time as Ecologist in residence after officially retiring last year. He has been appointed to various state and local conservation groups and currently serves as Director of the Environmental Research Center—recognized as one of the premier applied ecology research resources in the Midwest. In addition, he has been instrumental in incorporating computer technology into the Loras science curricula and research endeavors. He has received numerous grants to prepare educational interactive multimedia presentations and is currently recognized as a leader in the development of such multimedia software. Dr. Cawley has taught programming for biologists since 1980 and has worked for the last ten years with video, including work on the Iowa Public Television series *Land Between Two River*. It is in his teaching, however, that Dr. Cawley truly excels. His philosophy has never been simply lecture, but to involve his students in active discussion—his influence and optimism have provided the motivation for many of his students to look at learning in a new way and to gain a deeper understanding

of science. One of those former students chose to recognize Dr. Cawley in a tangible fashion by providing funds to Loras College for the establishment of the Edward T. Cawley Award for Excellence in Undergraduate Student Research in Biology.

DISTINGUISHED IOWA SCIENCE TEACHER

Robert L. Mutel

Robert L. Mutel, a native of St. Albans, New York, is Professor of Astronomy at the University of Iowa. During his tenure there, he has been instrumental in efforts to modernize and improve the laboratories for the basic physics course. His highly innovative and revolutionary work in incorporating modern computer and light detection technology into instructional laboratories for introductory astronomy courses has completely changed the approach to teaching these classes, and his accompanying curriculum is the first of its kind in the country. Dr. Mutel acquired grant monies to build an instructional laboratory using automated telescopes and computers. With this system, students can investigate major astronomical theories with observations they conduct themselves. Dr. Mutel is involved with the day-to-day use and observation of this system. He has daily contact with students, both those responsible for operation of the telescope and preliminary reduction of data and those who carry out their own research projects. The result of this interaction is a myriad of published articles co-authored by students with Dr. Mutel. Students are clearly motivated by his vision and dedication. Prior to his arrival at the University of Iowa, Dr. Mutel was a visiting scholar at the Institute for Theoretical Astronomy, University of Cambridge and the Bureau des Longitudes, Paris, as well as a physicist with the U.S. Antarctic Research Program. He has been awarded the Antarctic Service Medal of the United States (1972), was named University of Iowa Faculty Scholar (1983–85), and has served on the Executive Committee, National Radio Astronomy Observatory (1973–present). He has more than one hundred fifteen publications to his credit, and has been awarded more than two million dollars in external research and educational grants.

EXCELLENCE IN SCIENCE TEACHING AWARD ELEMENTARY SCIENCE

Kay M. Treiber

In the words of C. David Christensen, an assistant professor of science education at the University of Northern Iowa, "One only has to observe in her elementary classroom to see her students' excitement about learning science and applying it to their lives." Science is not just something to fit in at the end of a busy elementary schedule, but is an integral part of every school day in her classes at Price Laboratory School, Cedar Falls. Subjects range from kitchen physics to mystery powders and spatial relationships. Units of study are begun with students sharing prior knowledge of the content as well as listing questions that they would like to answer. She sees her role as a facilitator in a student-centered curriculum and assesses where students are to meet their interests and instructional needs. In her words, "It is so satisfying to introduce a unit, stand off to the side of the room, and watch as the children take charge of their learning."

What you would notice from Kay's list of professional activities is how very active she has been in education. Her list of presentations and professional service are an indication of a dedicated individual who gives freely of her time to the education community. She is a leader in many professional organizations and has given presentations on numerous topics such as authentic assessment and student-led

conferences. Kay has been a tireless advocate for effective science teaching at the elementary level and demonstrates her expertise every day with students in her classroom.

EXCELLENCE IN SCIENCE TEACHING AWARD ENVIRONMENTAL SCIENCE

Dennis W. Schlicht

Dennis believes that his most important task is to make the connection between the student and the world of nature and science in his classes at Central City Community School. His extensive field work and innovative student projects with rare butterflies, clams, bison excavations from peat mines and an award winning landscape project have given students real life experiences with environmental challenges. He gives freely of his time outside of the school day for student projects including mentoring college students who work with him. In his own words, "...my educational philosophy is still changing, evolving, I hope, into something better. I believe there is a core of science knowledge that is important to understand our world as a whole. I see this core as changing, negotiable, and smaller than it has traditionally been taught. School, teacher, and student must take an active role in the world around us."

Dennis's involvement and service in environmental science has been evident in the classroom, in his community, and in the state of Iowa. He is a recognized expert on Iowa lepidopterans whose work has inspired a new management plan for prairies and stimulated research. He has served as chair of the Conservation section of the Iowa Academy of Science and is a member of the Linn County Conservation Board. In many ways Dennis has demonstrated a commitment to the environmental sciences and to the students who have the privilege to work with him.

EXCELLENCE IN SCIENCE TEACHING AWARD GENERAL/MULTIPLE SCIENCE

Janet L. Dunkel

An observer to Janet's classroom at Charles City Middle School would find students taking ownership and responsibility for discovering science. They are encouraged to explore, to ask questions and to search for answers. Janet's role is one of a learner along with her students, who design and conduct investigations on issue-based science topics. One unit in particular began with a field trip to a local quarry to find fossils, progressed to the classroom for identification, the creation of time lines, and comparing relative ages. Finally the students made fossil booklets for younger children and shared information with the local historical museum. Students are encouraged to contact working scientists such as geologists, entomologists, and historians. Janet is conscientious in engaging all students in real science and has demonstrated particular expertise in the area of assessment practices and portfolios to assess the learning of her students.

Janet is a leader in her district's science curriculum reform effort, has been an Iowa Model Science/Math classroom, and is presently a field tester for the New Standards Science Portfolio Project. She has been an active participant as lead teacher in the Scope, Sequence, and Coordination Project, and is professionally active at state and national science conferences where she shares her enthusiastic teaching style.

EXCELLENCE IN SCIENCE TEACHING AWARD MIDDLE SCHOOL SCIENCE

Brenda Lee Garbe

Brenda's classroom atmosphere is one of community. Her students at Parkview Middle School, Ankeny, take an active role in their own learning and frequently assist each other in labs. She uses cooperative learning, adapts activities and evaluations to accommodate her diverse group of learners. Brenda believes that real world activities will make learning more fun and many times the students become the instructor with Brenda learning with her students. As a former special education teacher, she understands the need to make science hands-on. Brenda has taken particular interest in the space sciences and has developed aerospace curriculum at the Johnson Space Center. In her own classroom, Space Station Parkview is made by students who design it using thrown-away items. During space camp in her classroom, students work their way through stations that simulate weightlessness and astronaut training.

Brenda recently filled a leadership role in redesigning the science curriculum for a newly restructured school in Ankeny. Danielle Chappell writes, "Brenda is a complete educator in that she is a leader among staff, an outstanding role model for students, very good as a liaison with parents and school, and is always willing to help when needed." Dedication to her field, a knowledge of learners, and the successful application of teaching techniques has made Brenda most deserving of this award.

EXCELLENCE IN SCIENCE TEACHING AWARD PHYSICS

Mark M. LaPorte

It is not uncommon to see students in Mark's class at New Hampton High School learning physics with Nerf guns, matchbox cars, and scooters. That may also be the reason that interest in science, especially physics and chemistry, has grown in his school since he has been there. Teamwork projects, problem-solving, self-assessment, and high expectations help to prepare students for college or work. Mark employs a variety of assessment techniques such as open-ended laboratories, performance based work, and portfolios for students to demonstrate their learning in a variety of ways. The learning cycle is an integral part of his instructional design. For example, the unit on Atomic structure is designed to demonstrate how science is an ever-changing process. Students follow the developmental path of the theory, understanding the historical aspects, and recreating the discoveries made along the way. The unit includes information-gathering on the Internet, laboratory investigations, and culminates with a cooperative group project.

Mark's students speak very highly of him. One of them, Becky Kobliska, a senior at New Hampton High School, says "He is an excellent teacher who brings fun and humor into our classroom. His creativity, challenging teaching style, and concern for his students make him an outstanding instructor."

EXCELLENCE IN SCIENCE TEACHING AWARD BIOLOGY

William A. Forsee

A colleague at Abraham Lincoln High School, Council Bluffs, Christine Fink, writes that William's approach to students is characterized by humor and caring. "Students stop by his room to visit almost non-stop." He is a dedicated and effective teacher of the bi-

ological sciences. He initiated the development of a botany class and an advanced placement biology course which includes a writing component and participation in a national essay contest. Coordinating with the English department, students submit letters to the editor of the local newspaper on science issues of a controversial nature. Students are graded on the quality of their argument. William feels that every citizen must have a working knowledge of science and an appreciation of the art, beauty, and history involved in science as well as the facts and theories. He feels that students need to be able to distinguish fact from fiction and his classroom techniques reflect that philosophy. Every year his students participate in enrichment programs such as the Iowa Junior Science and Humanities Symposium and the U.N.I. Science, Technology, and Mathematics Symposium. William instills a love for biology and many of his students go on to major in biology in college. He particularly encourages female students to discover their talents in science and pursue challenges.

William has been very active in addressing controversial issues through the Iowa Academy of Science and through the Iowa Committee of Correspondence for which he was project director for science symposia in Iowa and Nebraska on the evolution/creation controversy and continues to serve the science education community.

EXCELLENCE IN SCIENCE TEACHING AWARD EARTH SCIENCE

Susan J. Vogel

Susan teaches by example. She is right in the middle of every project as a facilitator and excited participant at Fort Madison High School. Her rocket unit has become a favorite with students and parents alike. The students work in teams to design and build a pop bottle rocket that will fly the longest distance. Along the way they complete a budget analysis, learn about aerodynamics, and analyze factors that affect flight. Finally, the students research and produce illustrated books about the planets which are presented to the third graders of their school district. All students find success, have fun and learn. Susan integrates mathematics and science in her curriculum to encourage critical thinking and the application of information. Standards are high, but she sends a message to all students that they can succeed and that their efforts will be valued. Susan is an active professional and has shared her innovative activities with sci-

ence educators at state and national conferences. She has authored several publications including an earth science lab book.

Michele Stewart, a parent, wrote, "Mrs. Vogel has the ability to make science "fun" for middle school students because she is a dedicated science instructor who truly loves teaching. I feel the entire family was learning along with my daughter because of conversations that were sparked from her lessons." Another parent, Kristy Reid wrote, "Mrs. Vogel's teaching has greatly impacted my children. I believe she gave them opportunities to be successful and taught them to set high goals that could be reached through dedication and hard work."

EXCELLENCE IN SCIENCE TEACHING AWARD CHEMISTRY

Richard C. Wells

The hallmark of Rick's teaching is the spirit of collaboration which is a part of every class day at Davenport Central High School. Lab activities are designed so that the student has choices to make. They will find the need to talk with their lab partner in order to accomplish the lab. Students write a summary of their lab experience and share these anonymously with each other allowing opportunities for comments and discussion. Rick believes that students learn by doing, by asking questions, by talking to each other and by evaluating their own activities. He uses daily demonstrations, cooperative learning and real life applications. In the "Corny" lab students see themselves as entrepreneurs of a local industry to produce the highest yield and best quality ethanol from corn. They work together to design a plan, develop their secret recipe and evaluate the outcome. Chemistry becomes part of the lives of students rather than being isolated to the pages of a text book and to worksheets. A fellow chemistry teacher wrote, "He has never been hesitant to focus all his efforts toward providing a quality learning experience for his students. I see students in his class that really get excited about science, to the point of wanting to pursue more studies in that genre. He is a teacher that attracts students to learning."

Rick has been an active participant in the Iowa Science Teachers as chair of this year's elections committee, is a regional director and served on the Ad Hoc committee which worked to formulate a position paper about teacher licensure for the State Board of Educational Examiners. In addition he has provided leadership with colleagues in the Scope, Sequence, and Coordination project. Rick is a dedicated professional and a skilled teaching practitioner.